ABSTRACT OF THE DISCLOSURE

A method and system for monitoring and/or controlling the conditions of a wafer on an electrostatic chuck during plasma processing. The method and system include utilizing backflow gas pressure and DC clamping voltage as control variables to adjust the wafer temperature based upon impedance measurements determined by RF sensors located in the electrostatic chuck RF feed line. The method and system further include utilizing the clamping status of the wafer on the electrostatic chuck to monitor impedance during the plasma process.